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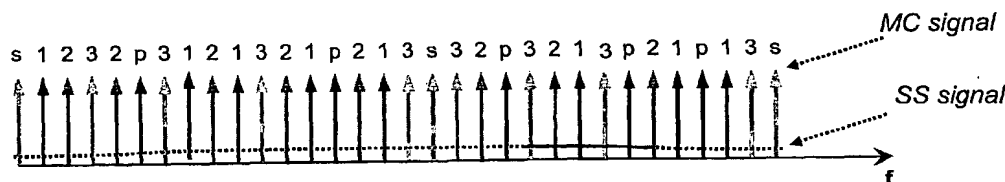
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(54) Title: METHODS AND APPARATUS FOR OVERLAYING MULTI-CARRIER AND DIRECT SEQUENCE SPREAD
SPECTRUM SIGNALS IN A BROADBAND WIRELESS COMMUNICATION SYSTEM



(57) Abstract: A broadband wireless communication system, wherein both Multi-Carrier (MC) and Direct Sequence Spread Spec-
trum (DSSS) signals are intentionally overlaid together, in both time and frequency domains. The overlaying mitigates the weak-
nesses of each technique. The MC signal carries the broadband data signal and takes advantage of its high spectral efficiency, while
the DSSS signal is used for special purpose processing such as initial random access, channel probing, and short messaging, where
properties such as signal simplicity, self synchronization, and performance under severe interference are desired. The methods and
techniques ensure that the MC and the DSSS signals are both distinguishable and that the interference between the overlaid signals
is minimized to have insignificant impact on the expected performance of either signal.

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